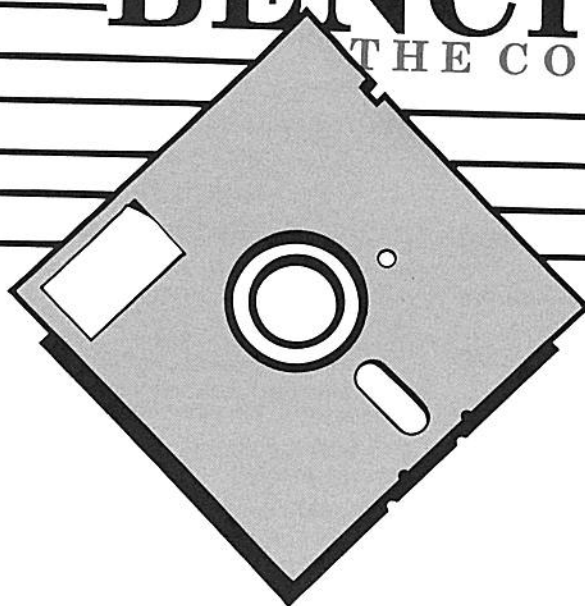


BENCHMARKS

THE COMPUTING CENTER



NORTH TEXAS STATE UNIVERSITY
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Sign-up for microcomputer communications courses now! See the last page of this issue for details.

SERVICES AVAILABLE TO USERS OF THE NTSU COMPUTING FACILITIES

The NTSU Computing Center is located in the Information Sciences Building (ISB), Room 119. Phone Numbers: Computing Center: (817) 565-2324; Help Desk: 565-4050; Graphics Lab: 565-3479

BENCHMARKS Questions/Contributions, Etc - Claudia Lynch

Information & ID-Codes; Disk Space Problems - Carolyn Goodman

Statistical/Research Support - George Morrow, Scott Barber, Claudia Lynch, Rocky Ward, Panu Sittiwong

Academic ADABAS/COM-LETE - Sean Widmer

CRSP & COMPUSTAT Problems - Panu Sittiwong

Student Programming Problems - CSCI Dept., GAB Room 542A; BCIS Dept., BA Room 152

JCL Problems; Password & Operating System Problems; Communication/Terminal Problems - Help Desk

Data Entry; Test Scoring & Analysis - Betty Grise

Administrative Applications - Coy Hoggard

Printout Retrieval - RJE Operators

DIALING UP NTSU COMPUTERS OVER THE TELEPHONE

Phone numbers for the Local Area Network (LAN) are:

300/1200 BAUD: (817) 565-3300; 3499

300 BAUD: D/FW METRO 429-6006

1200 BAUD: D/FW METRO 429-9314

The numbers that will accept either 300 or 1200 baud communications have an autobaud feature that requires you to hit the <RETURN> key repeatedly so that the receiving modem can determine the appropriate baud rate. When you have established a communications link, the # prompt will appear on your screen and you can enter one of following CALL commands to connect with the computer of your choice.

CALL 8040 connects with the NAS/8083 (does not support full-screen editing).

CALL 3270 connects with the NAS/8083 through a 3270 protocol converter (supports full-screen editing).

CALL DEC connects with the VAXcluster

CALL 780 connects with the Research VAX

CALL 2000 connects with the HP-2000

NTSU CABLE SYSTEM SCHEDULE

The current configuration of the NTSU cable system is as follows:

Channel 7 - NT Daily. Broadcasts from the NTSU Journalism Department.

Channel 8 - TAGER. Broadcasts go to and from NTSU to other links in this microwave network.

Channel 10 - NTSU Computer System Status Monitor (SSM). Displays the current status of the NAS, VAX, and HP computer systems supported by the Computing Center.

Channel 12 - Sammons Cable. Carries Cable News Network (CNN) unless a special program is requested.

Special broadcasts to and from classrooms can be arranged by the Media Library (565-2484).

HOURS FOR NTSU COMPUTER ACCESS AREAS : FALL 1987*

Location	Times	Days
Computing Center RJE	Noon-Midnight 7 a.m.-Midnight 7 a.m., Tuesday-Midnight, Saturday (Open 24 hours/day)	Sunday Monday Tuesday-Saturday
ISB 110 Terminal Area	2-10 p.m. 7:30 a.m. - Midnight 7:30 a.m.-6 p.m. 9 a.m.-6 p.m.	Sunday Monday-Thursday Friday Saturday
College of Business	Noon-11:45 p.m. 8:15 a.m.-11:45 p.m. 8:15 a.m.-7:45 p.m.	Saturday, Sunday Monday-Thursday Friday
GAB 550C	2 p.m.-Midnight 8 a.m.-Midnight 8 a.m.-5 p.m. 2-8 p.m.	Sunday Monday-Thursday Friday Saturday
Graphics Lab	1-11 p.m. 8 a.m.-11 p.m. 8 a.m.-7 p.m. Noon-5 p.m.	Sunday Monday-Thursday Friday Saturday

*Hours may vary. Check MUSIC/VAX News and/or posted schedules for exceptions.

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GENERAL INFORMATION

New Academic Computing Staff

Academic Computing is pleased to announce the addition of two new staff members. Sean Widmer has been hired as our new Academic Database Consultant. Sean comes to us from Haggard Apparel in Dallas where he worked as a Systems Programmer maintaining their MVS/XA operating system and related systems software. Prior to that, he worked in a similar capacity at Southland Corporation in Dallas. A 1985 graduate of the NTSU BCIS program, Sean will be the primary support person in Academic Computing for the College of Business's database and COBOL programming curricula. In addition, Sean will manage the Computing Center's billing system and perform other duties appropriate to his unique capabilities.

We have also recently hired an additional part-time graduate assistant, Jim Aman, to provide support for microcomputer users on campus, particularly those departments using or planning to install microcomputer networks. Jim is a Ph. D. student in the College of Education and previously served as the chairman of the Computer Science Department at St. Pius X High School in Houston. In addition to his responsibilities in the PC network areas, Jim will be available to help with PC applications software and hardware problems.

We welcome both Sean and Jim to the Academic Computing staff and look forward to taking advantage of their expertise. §

New Laser Printer at the College of Business RJE Station

It is no longer necessary to route your output to 'LASER' to get a printout from a laser printer. The Radian impact printers at the remote job entry station in the College of Business have been replaced with a Hewlett-Packard 2680A laser printer (identical to the one in the Computing Center RJE). Any output routed to 'BA', 'REMOTE1', or 'RMT1' will be printed on this new laser printer. 'LASER' remains, for now, the default designation for the REMOTE4 laser printer at the ISB output station.

The Radian impact printer in the ISB, currently available as 'REMOTE3' or 'RMT3', will become unavailable to users in the near future. When this occurs, all output routed to 'REMOTE3' will go to 'LASER.' Impact printing needs for academic users (mailing labels or other special forms) will be satisfied by making special arrangements with Academic Computing Services. §

Do You Know Your Password?

By Carolyn Goodman, Computing Center Administrative Services

When you receive your USER-ID ASSIGNMENT NOTICE, please observe that, in most cases, you will be authorized for more than one system, e.g., 8040-OS, 8040-MUSIC, 6650-OS, 6650-COMplete, VAX. Your USER-ID ASSIGNMENT NOTICE probably has at least two of these systems listed, and maybe more. Take care when changing your password because changing one password **WILL NOT** automatically change all the other passwords. **You should not discard the USER-ID ASSIGNMENT NOTICE form, even after you have changed the passwords.** In some instances, you may find that the password was changed incorrectly. In those instances you will need to refer to the original password indicated on the Notice form.

The Computing Center is here to assist with all your computing needs. If you need assistance **changing** a password, you can contact the Help Desk, located in ISB 110, 817-565-4050; if you need assistance in **identifying** your password, you must come, in person, to the Computing Center Main Office, ISB 119. (Please have your Student or Faculty/Staff ID with you.) For further password or other computing questions or difficulties, contact me at the Computing Center, 817-565-2324. §

New Graphics Plotter for AUTOCAD and SAS/GRAPH

By Panu Sittiwong, Academic Computing Staff
(AC09@NTSMUSIC)

The Computing Center has recently acquired a new Hewlett-Packard plotter model 7550a. It is located in the Computing Center Graphics Lab in the Information Science Building. The new plotter is available for producing graphic output from AUTOCAD running on a TIPC and SAS/GRAPH running on VM/CMS.

AUTOCAD users do not need to modify their programs to use this new plotter. SAS/GRAPH users, on the other hand, will need to add the following options to their SAS/GRAPH programs.

```
GOPTIONS DEVICE=HP7550A HANDSHAKE=XON/XOFF
  TRANTAB=GTABCMS PROMPTCHARS='110A010D01000000'X'
  COLORS=RED YELLOW GREEN CYAN BLUE PURPLE BLACK;
```

Where:

- **DEVICE** = Defines the device driver for the graphics output.

- **HANDSHAKE** = defines the method of communication between the CMS operating system and the plotter.
- **TRANTAB** = defines the translation table to convert EBCDIC characters to ASCII characters.
- **PROMPTCHARS** = defines the terminal prompt characters to be used by SAS/GRAPH procedures
- **COLORS** specifies the order of color-pens mounted on the plotter.

Producing SAS/GRAPH Plots on The HP-7550A

The steps below should be followed to produce SAS/GRAPH output on the HP-7550A plotter.

1. After you are satisfied with your graphics output, sign on to CMS through 8040 using the terminal attached to the plotter.
2. Modify your SAS/GRAPH program by adding the above options.
3. Submit your program for execution.
4. When SAS is ready to produce the plot, it will prompt you to load paper onto the plotter. If it is already loaded, you should hit the <RETURN> key. Press the <RETURN> key for the next two prompts and the graphics output should start to plot.

Contact the Graphics Lab assistant on duty if you need further assistance. §

Avoiding the Printer Turnaround Blues

By Scott Barber, Academic Computing Services Staff
(AC10@NTSMUSIC)

If you have ever had to wait for an hour or more for a printout, then you understand that getting output from the mainframes can be at times be somewhat disconcerting. Especially toward the end of the semester when everyone (including you) has assignments/papers due, and you want output quickly. Even with the new laser printer in the BA building, taking advantage of the following ideas may save you a lot of time. Some of these suggestions apply only to MUSIC users, others pertain to all users of the mainframe remote printers.

MUSIC Users

If you are using MUSIC, be aware that you do not have to page through hundreds of lines of output, one page at a time, to find error messages toward the end of the file. You can send a "break" to OSJR, and then "skip" lines of output you don't want to look at. Take, for example, a job that generates output which is 1500 lines long, and you think that there may be an error around line 1400. In OSJR at the ENTERREQUEST: prompt type:

```
OUT J=###,D=ALL
```

where ### is the job number given in OSJR.

After the More message appears in the lower right-hand corner of the screen, send a "break" command.¹ After a few moments, an **Attn** message will appear in the lower right-hand corner. When this happens, enter /SKIP 1350 <RETURN> You may need to press <RETURN> a second time after a few moments, but then the output will resume displaying the output after having skipped 1350 lines. If you want to skip all the way to the end, you may enter /SKIP ALL at the **Attn** prompt.

Another way to quickly search output at the terminal screen is to store it in a MUSIC file, and then edit the file and search for errors with the MUSIC LOCATE command. (For this, you must have enough space in your SAVE library to store the output). The command in OSJR to store the whole job in a file is

```
OUT J=###,D=ALL,FILE=outfilename.
```

where, again, ### is the job number in OSJR, and *outfilename* is the name you assign to your output file.

(If you know the DSID for the actual output you want to examine, you can specify that instead of ALL. For example, SPSS output is placed in DSID 4, and SAS output is in DSID 5.)

When editing this file, MUSIC will warn you of the 133 column width, but don't let that bother you. You can use the LOCATE command to jump down to the spot in the file you want to examine. This is a particularly good method to use when connected to MUSIC over a 300 or 1200 baud phone line!

Microcomputer users

If you are using a microcomputer with communications software, you have the option of printing it directly on your local PC printer. It would be nice to have a 132 column printer for this application, but remember that many 80 column printers can print 132 characters per line in compressed mode. Another alternative is to download the output to a file on the PC for editing with a word processor.

Everybody!

Some of you may not be aware that there are some "hardcopy" terminals available in the public access terminal rooms in the BA and ISB buildings which can be used for getting program listings and other output quickly. Limiting use of these terminals to getting printed output will be helpful.

As implied in the rest of this article, the best way to avoid slow turnaround times is not to use the mainframe printers! If you

¹3270 users can send a break signal by typing the sequence <ESC> <ESC> <P> <1> - 8040 users can press their terminal's <BREAK> key - PCWS users on an IBM XT or clone can press the keypad minus key <-> - other microcomputer users should try <ESC> <ESC> <P> <1> or check the communications software documentation for the correct "break" sequence. If your terminal or software emulates a VT100, then <ESC> <Q> will send a "break."

can examine output on the terminal screen or on your own local printer, you will often be much better off.

Finally, if you just *have* to send your job to a remote printer, there is a new utility for determining printer turnaround status on the ISB and BA printers. From *GO mode in MUSIC, type **PSTATUS**, and you will get a report of the recent turnaround times for these printers. This will reflect the same information that has previously been posted at the ISB I/O window, namely the amount of time that recently printed jobs took to print. Of course, this may be somewhat different than the time it will take a job that is routed *now*. However, it will give you the opportunity to compare turnaround times for the laser printers, and route to the one which is likely to provide the fastest service. §

Spotlight on MUSIC 1.2, Part II - Commands and Job Control Statements

Philip Baczewski, MUSIC Time-share Coordinator
(AC12@NTSMUSIC)

This is the second in a series of articles highlighting some of the important new features of MUSIC/SP Release 1.2 which is scheduled for installation at NTSU in early January 1988. This series is intended to provide introductory information to assist NTSU faculty, students, and staff in planning for the changeover to this new version of MUSIC.

Introduction

As happens with most software upgrades, the move to MUSIC/SP 1.2 will bring with it a couple of new commands, and a few changes to some existing commands. Most commands currently used on MUSIC will function identically in MUSIC 1.2, however, MUSIC users may find that the changes made, though small, will provide them a more powerful computing environment.

One change related to MUSIC commands does not pertain to their function, but to how they are referred in the new MUSIC documentation. Commands to this point have been placed in two categories: **immediate commands** and **deferred commands**. In the documentation for MUSIC 1.2, **immediate commands** are referred to simply as **commands**. What have been known to this point as **deferred commands** are now called **job control statements**.

This new nomenclature is in general more functionally descriptive: **commands** are issued interactively from a terminal or from a command procedure written in the REXX language and cause some immediate action to occur; **job control statements** are usually stored in an executable file and control the action occurring during the compilation or execution of a program.

Two New Commands

Two new commands with similar functions have been added to MUSIC 1.2. These are **BROWSE** and **VIEW**. Both allow you to examine the contents of a MUSIC save library file

with a full-screen display and the ability to page back and forth through the file.

BROWSE is similar to the **EDIT** command, but provides read-only access, that is, you may use editor functions such as **LOCATE** or **UP** and **DOWN** to move through a file, but you may not modify the file while **BROWSE**ing it. The syntax of the **BROWSE** command is as follows:

BROWSE [filename] [LRECL(n)] [UIO] [MAX(n)]

filename is the name of the Save Library file to be browsed. **LRECL(n)** specifies the record length to be used during the session. **UIO** causes the file to be read by 512-byte blocks. This allows you to browse files with a record format of **U** or files which cannot be read sequentially. For example, you could possibly examine a hexadecimal listing of a load module created on MUSIC. **MAX(n)** specifies the maximum number of records to be read from the file.

The **VIEW** command invokes the utility program for examining files of any record length, type, or size on a full-screen terminal.

Files can be displayed in hexadecimal. ASCII mode is available to view ASCII files on a 3270-type terminal. In this mode printable ASCII characters are translated to their EBCDIC equivalents. **VIEW** provides a wide variety of options, including several which allow powerful control of the method for scrolling through a file.

Changes in Existing Commands

A few of the existing MUSIC commands have slight additions or changes to their syntax in MUSIC 1.2. The **EDIT** (and **TEDIT**) command has a few additional options that may be used when issuing the command. Typing **EDIT filename RO** will start a Read-only edit session on file *filename*. This use of the **EDIT** command is functionally the same as the **BROWSE** command. The **EDIT** command also allows the use of the **UIO** and **MAX(n)** options in the same manner as described above for the **BROWSE** command. Several other important changes in the function of the editor have been made in MUSIC 1.2 and these will be detailed in a later article.

Several changes have been made to the **LIBRARY** command in MUSIC 1.2. Specifying the **VSAM** option will show a listing of only the **VSAM** files found in your library (for more information on MUSIC **VSAM**, see Part I of this series). Additionally, a **FULL** library listing will also include a **T** heading, under which there will be a **C** if the file is common (public) and a **V** if the file is a **VSAM** file.

Most importantly, the **N(group)** option of the MUSIC 1.1 **LIBRARY** command is replaced by a more general search specification. To see a listing of a subset of your save library files you could type **LIB searchspec. Searchspec** (search specification) indicates which file names are to be searched for in your save library index. It may be an actual file name, in which case only that file is listed. Or, the string may contain one or more wild characters **?** and *****, in which case all file names matching the pattern are listed.

A ? matches any single character in the corresponding position of a file name. A * matches any group of zero or more characters. If the `searchspec` parameter is not specified and no parameters are used, all the file names in your save library are listed. If you wish to specify parameters then enter `LIBRARY * parameters`. The * is your search specification indicating all files on your code. For example, in MUSIC 1.2, to get a FULL listing of your save library files you must enter

`LIB * F`

rather than simply `LIB F` as was the case in MUSIC 1.1.

Two other changes are worthy of mention here. The another option `/RECORD ON` to begin saving your terminal input and output to a file called `@REC.000`. To end your "recording" you could type `/RECORD OFF`. Turning `RECORD` back on would again start saving a record of your terminal I/O by appending to the already existing file. MUSIC 1.2 provides a way to start a totally new `RECORD` file by entering

`/RECORD NEW`

The other change is one to a familiar job control statement. The `/INCLUDE` statement will have an additional option in MUSIC 1.2 to allow you to include part of a save library file. The syntax for that option is

`/INCLUDE filename (+ m-n)`

where `m` is the number of the first line to be included and `n` is the number of the last line to be included.

For More Information...

When MUSIC/SP 1.2 is installed in early January of 1988, new help files will be added as necessary to fully document these new commands as well as the changes to existing commands. In addition, the *MUSIC User's Reference Guide* will be updated to reflect these changes.

Next Time... Context Editor changes in MUSIC/SP 1.2\$

BENCHMARKS FORUM

BENCHMARKS Forum is intended to serve as a vehicle for answering questions that may be of general interest to the user community. If you have a question, please send electronic mail to the Benchmarks editor (AS04@NTSMUSIC) or write it down and drop it by the Computing Center. Deadlines permitting, we will try to answer it in the next issue.

Question: If I forget my VAX password, how do I get it changed?

Answer: If you forget your password on any academic computer system, you will need to go to the Computing Center offices in ISB 119 and fill out a Request for Password Confirmation form. As a security precaution, Computing Center personnel will ask you for some form of identification, so it is a good idea to have your student/faculty ID available. Once you have filled out the appropriate paperwork, the VAX operators will be notified

and a new password will be assigned. Please do not call the VAX operators first since they are not authorized to respond to user requests for password changes.

Question: Where can I get access to VAX manuals?

Answer: We maintain copies of most VAX manuals in various public access areas on campus. In order to determine the most convenient area that has the manual you need, type `HELP MANUALS` from the `DCL $` prompt. This help topic lists all VAX manuals and their areas of availability on campus. Manuals can also be purchased directly from DEC at 1-800-258-1710, but they are extremely expensive.

Question: I want to send a MUSIC file to another MUSIC user. What is the best way to do that?

Answer: There are two ways to share files directly with others on the MUSIC system. The method you decide to use is dependent upon numerous considerations including the amount of available storage space, the number of people you want to receive the file, and the necessity of having multiple copies of the file around.

The first way is to change the file "attribute" to `SHR` (share). This will allow the file to be read by other MUSIC users. There are two ways to set this attribute.

- 1) For an existing file called "STUFF" residing on the account `EX34`, enter `SET STUFF = RD` from the `*GO` mode.
- 2) If you are creating a new file which you will want to share with others, use the `SHR` option of the `FILE` command (e.g. `FILE STUFF SHR`) from the editor command line.

Once this attribute is set, anyone may look at the contents of this file by prefixing the filename with the owner's ID code. Thus, entering the command `EDIT EX34:STUFF` from any MUSIC account would load that file into the MUSIC editor. If you (as the receiver) want to save the file in your own library, you can do so by entering a filename after the `SAVE` or `FILE` command (otherwise, the filename is still `EX34:STUFF`). Thus, entering `FILE STUFF` from the editor command line would save a new file called `STUFF` in your own account.

The other method for sharing files is to use electronic mail to send a copy of the file directly to another user. This can be done with the `MEMO SEND` command or the `SENDFILE` command. The syntax for the first is `MEMO SEND TO(ID##) F(STUFF)`, typed from the `*GO` mode (where `ID##` is your MUSIC ID and `STUFF` is the name of the file you wish to send). Alternatively, you can type `SENDFILE STUFF ID## NTSMUSIC`.

If you use `MUSIC MEMO` for this operation, keep the following considerations in mind. `MEMO` will save a backup copy of the file in your MUSIC library under the filename `@LMEMO`. Therefore, there must be at least as much free space on the sender's account as the file is large, or the transfer will not work. Also, the receiver must have some extra free library space as well, because a backup file (`@TMEMO`) will be produced in his/her MUSIC library when the `MEMO` program is used to receive the file.

Because of its simplicity, it is handier to use the SENDFILE command to send someone a copy of one of your MUSIC files. (Sorry, you cannot use SENDFILE to send to a "list" of people defined by the MUSIC NAMES facility.) Of course, for receivers to get the file, they must get into the MUSIC MEMO facility to retrieve it. On the other hand, if you want to share a file with several people at once or if the file is fairly large (more than 10K), it would be easier and more storage efficient to set the file attribute to share, and let people look at your copy from their account.

Question: *I'm thinking about purchasing a modem to communicate with the VAX from home. What modem do you recommend?*

Answer: There are several factors to consider when purchasing a telephone modem. The first, of course, is speed. Unless you are given one for free, you should avoid a 300 baud modem; they are simply too slow for practical use. Prices for 1200 baud modems range between about \$70 and \$300 while 2400 baud modems range in cost between about \$150 and \$400. The Computing Center currently supports only 300 and 1200 baud dial-up communications, but 2400 baud modems will be in place by the start of the spring semester both in Denton and in Ft. Worth (for metro-line access). Thus, if you will be here after December, you will probably want to purchase a 2400 baud modem.

Once you have decided on speed, you need to decide whether you will purchase an internal or an external modem. If you are not using a PC to communicate, the external modem is your only option. If you are using a PC, an internal modem has some advantages. First of all, it does not require a serial communications port on your PC. In addition, it makes for a slightly less cluttered work environment. Finally, internal modems tend to cost about 10 to 20% less.

On the negative side, internal modems are machine-specific; if you have a IBM-PC now and purchase an IBM PS/2 Model 50, 60 or 80 later on, you will need to buy a new modem. Another problem with internal modems is the fact that there are no LED status indicators like those found on external modems. These LEDs can be helpful in diagnosing problems. Finally, it is much more difficult to lend an internal modem to a friend since it requires disassembly of your PC.

The choice of a specific brand is somewhat more difficult. Almost all modems on the market today are software compatible with the industry-standard Hayes Smartmodem, and virtually all conform to international standards for communicating at 300, 1200, and 2400 baud. Some offer added features such as a speakerphone that may be useful. However, probably the most important consideration is the warranty. Most manufacturers offer two years while some offer 5 years. However, keep in mind that purchasing a "Super-Duper"-brand modem with a 5-year warranty offers no security if the company goes out of business in 6 months. It has been our experience that leading vendors such as Hayes and US Robotics offer excellent service, but their

modems cost significantly more. If you purchase a modem from a discount vendor such as Soft Warehouse in Dallas, make sure that you make heavy use of it the first few days. If it fails during the first ten days, they will probably replace it with a new one; after that time, you will probably have to return it to the manufacturer.

Question: *Could you please explain how to print my job on the LASER printer so that it looks like type-written pages?*

Answer: The laser printer has two types of output: unrotated and rotated. Unrotated output prints across the long part of the page, and can hold as many as 132 characters per line. The "standard" output from the laser printer is unrotated. Rotated output prints across the short part of the page and can only hold 80 characters per line.

In order to use something other than the standard output, you must modify your JCL. Some of the rotated forms are:

- TN01 - most commonly used for Waterloo/SCRIPT
- PI01 - standard PICA type style
- EL01 - standard ELITE type style
- SC01 - Script type style

There are two ways to use these forms on your JCL. On your job card, you can specify a particular form in the following manner:

```
//IDnnPRT JOB (IDnn,30,3,TN01),'name',PASSWORD=secret
```

In this example, all of your job would be printed using the TN01 form (80 characters per line). You can also specify a form at other places in your JCL. If you are using Waterloo/SCRIPT, for example, you could place the following line in your JCL:

```
//SYSPRINT DD SYSOUT=(A,TN01)
```

In this case, only your text output would be printed using TN01 (your system output would still be printed using the standard form).

If you are using the MUSIC PTPCH utility to print a file you can specify a form to use by including the following command:

```
FORM='TN01'
```

More information about using and specifying different forms for the laser printer can be found by typing **HELP LASER** from MUSIC *GO mode. If you have further questions, call the Help Desk at 565-4050.§

*Benchmarks Reader/User feedback is encouraged.
Send all letters, suggestions to:*

North Texas State University
The Computing Center
NT Station, Box 13495
Denton, Texas 76203
Attn: *Benchmarks* Editor

MICROCOMPUTERS

PCWS - A Communications Program to be Used With MUSIC/SP

Philip Baczewski, MUSIC/SP Time-share Coordinator
(AC12@NTSMUSIC)

PCWS (Personal Computer Work Station) has been available for more than a year now, yet there are still some microcomputer users who are unaware of the benefits to using this communications package for accessing MUSIC. With the number of the IBM and compatible PCs purchased in the last several years, it may be a worthy endeavor to give a brief introduction to PCWS, its capabilities, and the advantages it offers to PC users who need to communicate with MUSIC.

Components of PCWS

PCWS is a communications package designed specifically to allow asynchronous communication between IBM Personal Computers or compatibles and the MUSIC/SP operating system. The two main components of the software are CLM (Communication Line Monitor) and TERM (the terminal emulator). CLM remains memory resident throughout the communications session. It is responsible for handling communication line interrupts, data buffering and checking, and processing commands from the host (mainframe) computer. CLM requires a minimum of 35K bytes of RAM storage when using a five page screen buffer, and will use a maximum of 108K bytes of RAM with a fifty page screen buffer.

TERM is loaded after CLM is loaded. TERM takes care of all screen handling and keyboard input. TERM may be exited at any time during the communications session without affecting CLM so that you may issue DOS commands (change directories, copy a file, etc.) without having to sign off of MUSIC. Once you have finished using DOS commands, TERM may be loaded again and your session with MUSIC will resume in a normal manner.

Capabilities of PCWS

PCWS has three major functions. It is a terminal program, a file transfer facility for MUSIC and the PC, and an "interpreter" for a command language which allows you to automate communications procedures. The terminal component of PCWS allows access to full screen functions otherwise available only on IBM 3270-type terminals or through protocol converters. It also allows flexible viewing of non-full-screen output.

There are two modes of terminal emulation: **PAGE mode** allows you to collect up to 50 screens of buffered output (a

library listing or file listing, for example) and enables you to page back and forth to through the output; **3270 mode** is entered when a full-screen application is started up on MUSIC. This gives PCWS users the use of the full screen editor and the many panel-driven versions of utility programs that are normally inaccessible from ASCII line terminals. To enable these features, however, PCWS users must remember to use the following syntax for specifying their MUSIC terminal type when logging on:

/ID IDnn;PCWS

When using any of MUSIC's full-screen capabilities from PCWS, the PC function keys are used as MUSIC's PF keys. Therefore, if you are using PCWS to edit a file, you can press F3 to move to the top of the file, F5 to move down a page, etc.

PCWS allows fairly quick and easy file transfer between MUSIC and a PC. This file transfer facility is implemented in two separate utilities. **XTPC** allows file transfer from MUSIC to the PC, and **XTMUS** is used to transfer files from the PC to MUSIC. Both utilities use the same option specification to allow binary file transfer, record length specification, and list-driven file transfers. Additionally, wild-carding can be used to achieve multiple-file transfers.

PCWS's "interpreter" function allows the implementation of "EXEC" files to automate communications. EXEC files consist of a series of special programming statements which allow you to control PCWS functions in a non-interactive manner. For example, at NTSU, PCWS is distributed with an EXEC file called **NTSUCOM** which automates the dial-up process and the sign-on to your MUSIC ID.

Advantages of PCWS

PCWS offers MUSIC users some advantages over using other terminal emulators or communications packages, whether it is with ASCII-line communications (call 8040) or with the protocol converters (call 3270). By emulating the full-screen functions on the PC, PCWS gives the power and flexibility of the full-screen environment, with the speed of ASCII-line communications (When you use PCWS at NTSU, you use the **LAN CALL 8040** command). In the editor, PCWS is also a bit faster because it only needs to redraw a full screen when you scroll to a new page. When using the protocol converter, at least part of the screen must be redrawn each time you register changes by pressing <RETURN> or using a PF key.

Another advantage of PCWS is the fact that it offers file transfer with MUSIC and full-screen capability in the same session. If you have experience using other communications packages with MUSIC, you know that you can either do full-screen editing, or transfer a file, but doing both in the same session is

either difficult or impossible. PCWS provides possibly the easiest file transfer available for MUSIC and the PC.

One more handy aspect of PCWS is the capability of viewing multiple screens of output when in page mode. The utility of this function is evident when you view a long output listing in MUSIC OSJR. PCWS allows you to see many pages of output, so that you can debug a problem by scrolling back and forth between an error message, for example, and the program's source listing.

More Information

By now you may be saying to yourself, "this PCWS program seems pretty good, but how can I get a copy?" Well, this is another advantage of PCWS. Anyone with a MUSIC ID at NTSU can acquire PCWS for no charge simply by bringing a DOS-formatted 5 1/4 inch floppy disk to the Computing Center offices (ISB 119) where it can be exchanged for a disk containing the PCWS software. Along with the disk you will receive a handout containing information about PCWS. In addition, there is extensive on-line help available from within the TERM program. If you have further questions you can call the HELP DESK (ISB 110, 565-4050) or the Computing Center Offices (ISB 110, 454-2324).§

Micro-Tips

This column is intended to serve as a forum for sharing useful tips on making more productive use of microcomputers. If you have a tip that you feel may be of use to campus users, submit it to the BENCHMARKS editor for possible inclusion in a future issue.

Expanded versus Extended Memory

A great deal of confusion exists among PC users concerning the difference between extended and expanded memory. If you are contemplating installing additional memory in a PC, you need to know the difference between the two. Choosing between extended and expanded memory will depend both on the type of PC you have and also on what you are planning to use the additional memory for. For those of you who have an NTPC with 1 Megabyte of memory, you should be aware that, technically speaking, the additional 360K of memory beyond the 640K addressable by MS-DOS is neither extended nor expanded memory. Since 168K of this memory is used by DOS for video and ROM address space, only the remaining 192K can be used, and this 192K can be used only as a RAM-disk, a block of memory that appears to your system as a super-fast disk drive. If you configure a RAM-disk of more than 192K on an NTPC, the remaining memory will be subtracted from the 640K addressable directly by DOS.

True extended memory is most commonly found in machines that use the Intel 80286 or 80386 processor. These processors do not suffer from the memory constraints inherent in the 8088 class of processors used in older PCs and thus are fully capable of using this memory to run programs.

The problem, as noted above, is that even with an 80286 processor, MS-DOS cannot address memory beyond 640K for normal applications. However, the upcoming OS/2 operating system, which runs in the 80286's protected mode, will be capable of using extended memory for applications. Under current versions of DOS, extended memory is useful only as a means for creating RAM-disks. The exception to this general rule is found in the case of Novell's Advanced Netware 286 network operating system. Since Netware is really a proprietary operating system running under the 80286 protected mode that looks like DOS, it is capable of addressing up to 16 MBytes of RAM on an AT-class machine. This is one of the reasons it performs so much better than network operating systems built around DOS, such as those currently offered by 3Com, Microsoft, and IBM.

Expanded memory is entirely different from extended memory and a bit more confusing as well. The LIM expanded memory standard (LIM-EMS) was originally developed by a cooperative effort between Lotus, Intel, and Microsoft to allow users of Lotus 123 to create larger spreadsheets within the constraints of MS-DOS. Utilizing a bank-switching technique popular during the CP/M days, LIM-EMS served this need well and allowed older PCs, as well as ATs, access to additional memory. Unfortunately, it was impossible to actually run programs in LIM-EMS memory. A short time later, a consortium of software and hardware developers led by AST developed the Enhanced Expanded Memory "Standard" (EEMS) that did allow programs to be executed in expanded memory. Using the DesqView multitasking system with EEMS memory, PC users are able to run multiple programs simultaneously, even if the sum total of memory used by those programs exceeds 640K. In August, this battle between EMS and EEMS was resolved with the announcement of LIM-EMS Version 4.0 which incorporates the advantages of EEMS into the original LIM-EMS standard. DesqView now supports LIM-EMS 4.0 and it is entirely possible that this standard will prolong the life of DOS, especially if developers of memory-resident utilities (such as Sidekick) write their programs to run in expanded memory.

Now for the bottom line. If you have an older PC based on the 8088 microprocessor, extended memory will only allow you to create a RAM-disk. If you want to add memory, you should strongly consider an expanded memory board that is compatible with LIM-EMS Version 4.0. If you have an AT-Class machine, you should look for a board whose memory can be configured as extended or expanded (LIM-EMS Version 4.0) memory. This will allow you the benefits of expanded memory in the DOS environment while at the same time protecting your investment in the event that OS/2 emerges as a widely-supported standard.

WordPerfect Macros

One of the most useful features found in WordPerfect is its macro capability. Macros are sets of keystrokes that are executed when you press a certain key combination, usually the Alt key and a letter between A and Z. Macros can be useful

for any word processing action that you perform on a recurring basis. For example, if you spend a great deal of your time writing memos, you could define a macro to generate the heading. Another common use of macros is to issues formatting commands for tables. One of the most innovative macros we've seen deals with the problem of laser printers that output long documents in reverse order, requiring manual reorganization. A simple WordPerfect macro takes care of this problem.

Creating a WordPerfect macro is a simple process.

1. Press <CTRL> <F10>. The message Define macro: will appear on the last line of your display.
2. Enter a name for your macro. You can enter a descriptive name, but this will slow you down when you want to use it. A better idea is to press the <ALT> key and a letter and use that as your macro name. Once you have entered the name, Macro def will flash on the last line.
3. Type all of the keystrokes that you want to have entered into the macro file. These keystrokes can be text, function keys, or a combination of text and function keys.
4. Press <CTRL> <F10> again to end the macro definition. The macro is now saved in your default directory and is available for future use.

If you choose to use the <ALT> <X> method of macro definition, it is a good idea to create a file in your default directory called macros that contains a description of your current macros. In fact, you might even wish to create a macro that lists this file on the screen for reference!

WordPerfect also allows you to repeat a macro a specific number of times (useful for printing multiple copies of documents), insert timed pauses within macros, and insert pauses to wait for keystrokes to be entered. In addition, simple, repeating, and conditional chains of macros can be defined for complex applications. For further information, consult the WordPerfect manual's "Special Features" section.

The ARC Utility

With the proliferation of shareware and public domain programs on microcomputer bulletin board services (BBSs) came the need to find ways to make storage and transfer of these files more efficient. Many different programs have existed for compressing files and for saving multiple files into a common "library" file.

One of these programs has emerged as a "standard" in the microcomputer world - the ARC (Archive) utility by System Enhancement Associates. Most BBSs that are involved with the uploading and downloading of MS-DOS files support ARC file compression.

To use ARC, the ARC.EXE file must be in the default drive and sub-directory or in the DOS PATH (see *Benchmarks*, October, 1987). Entering ARC from the DOS prompt

without parameters will give you the copyright information, a message about the "shareware" (see below) nature of the program, and a (somewhat cryptic) description of the syntax of the ARC command and of the one-letter parameters.

While there are many options provided by ARC, you will usually need to perform only a few of them. The most common of these include getting a verbose (v) listing of files, printing (p) an ASCII text file to the screen or printer, or extracting (x) files from an ARChive.

To extract the INFO.DOC file from the UTILITY.ARC file, issue the command:

ARC X UTILITY INFO.DOC

By default, the INFO.DOC file will be placed on the default drive and sub-directory. If the UTILITY.ARC file is on a floppy disk and you want to put INFO.DOC onto a hard disk sub-directory, place the diskette with the ARC file in drive A: and set the destination sub-directory as the default. (Don't forget that ARC.EXE must reside in the default directory or somewhere in the DOS PATH.) Then issue the command:

ARC X A:UTILITY INFO.DOC

ARC supports DOS wildcard specifications, so you may substitute *.EXE for the INFO.DOC specification to extract all the .EXE files in UTILITY.ARC. ARC can be used to store your own files that are used infrequently, and we recommend that you ARChive files you want to upload to a PC bulletin board. This will decrease upload time (helpful for long distance!) and help save space on the SYSOPs hard disk.

As with all shareware programs, if you like the software and use it often, we suggest that you make a contribution to System-Enhancement Associates. Having such useful software available inexpensively and without copy protection is worth supporting.

If you would like a copy of ARC, bring a formatted diskette to the Computing Center Reception Area, ISB 119. \$

Micro-Tips Addendum

Please substitute the following line in the *Benchmarks* Micro Tips sub-section titled "Increasing Disk Buffers to Improve Performance" (August/September 1987, p. 17)

COPY CON CONFIG.SYS <RETURN>

The original read: COPY CON FIG.SYS <RETURN>. \$

Obtaining WSSINDEX

By Scott Barber, Academic Computing Staff
(AC10@NTSMUSIC)

The last issue of *Benchmarks*, contained a description of the WSSINDEX program for cataloging floppy diskette libraries. Unfortunately, we didn't tell you how to get it!

If you are interested in this program, simply bring a formatted floppy diskette to the Computing Center Reception Area, ISB 119. You may have to leave the diskette for a while and pick it up later, depending on the secretaries' workload. \$

VAXEN

Cluster Upgraded to VMS 4.6

By James Shoffit, VAX operator (JAMES@NTSUVAX)

The VAXcluster was upgraded to version 4.6 of VMS as of October 7. VMS 4.6 will fix many bugs that existed in VMS 4.5, but will have little impact on the average user.

Noteworthy changes in VMS:

1. Support for VT300 series terminals
2. The default record length of a TEXT file in Pascal will increase from 133 to 255 characters.
3. The DEC function in Pascal will display 10 instead of 8 significant digits.

This upgrade is hardly exciting. The next upgrade will be to VMS version 5.0, where many major changes will appear. \$

FTP Now Available on the VAXcluster

By Billy Barron, VAX Operator (BILLY@NTSUVAX)

FTP (File Transfer Protocol) is used to access ARPAnet hosts to transfer files between the VAX and the ARPAnet host. This version of FTP is known as VFTP (VMS File Transfer Protocol Handler: User Interface) and uses the DEC-NET/TCP gateway on TEXNET.

An example session with FTP would look like:

```
$ftp simtel20.arpa <-- You want to use FTP on the node
SIMTEL20.ARPA
VMS User FTP version 1.08 13-Nov-1986 <-- Establishing a
connection to DECnet/TCP gateway
220 SIMTEL20.ARPA FTP Server Process 5Z(50)-7 at Sun 4-Oct-87
16:31-MDT
```

Now you can log in using the USER command

- Log in as user ANONYMOUS.

```
VFTP> user anonymous
```

- Enter the password of user ANONYMOUS.

```
Password: GUEST
230 User ANONYMOUS logged in at Sun 4-Oct-87 16:31-MDT, job
12.
```

- Get a directory listing.

```
VFTP> list
200 Port 5.176 at host 128.83.1.26 accepted.
150 List started.
PS: <ANONYMOUS>
BOOTSTRAP.HLP.25
SIMTEL-ARCHIVES.INFO.11
2 buffers, 59 bytes, 0 index
59 bytes in 0.7 seconds = 715 bits/second
226 Transfer completed.
```

- Copy a file from the remote site to your directory on the VAX.

```
VFTP> get simtel-archives.info.11
200 Port 5.177 at host 128.83.1.26 accepted.
150 ASCII retrieve of ANONYMOUSSIMTEL-ARCHIVES.INFO.11 started.
14 buffers, 23181 bytes, 0 index
23181 bytes in 27.0 seconds = 6866 bits/second
226 Transfer completed. 23181 (8) bytes transferred.
```

- Change your directory (like SET DEFAULT or CD).

```
VFTP> cwd pd: <cpm>
331 Default name accepted. Send password to connect to it.
```

- Get another directory listing

```
VFTP> list
200 Port 5.178 at host 128.83.1.26 accepted.
150 List started.
PD: <CPM>
-FILES.DOC.4
CPM.ARC.88
CPM.CRCLST.203
CPM.DIRLST.48
CPM.HDR.1
FILES.DIR.203
FILES.IDX.213
ZSYS.IDX.76
2 buffers, 121 bytes, 0 index
121 bytes in 4.7 seconds = 206 bits/second
226 Transfer completed.
```

- Get out of FTP.

```
VFTP> bye
221 QUIT command received. Goodbye.
```

The above session as you can see is quite messy, but allows very easy file transfer from an ARPAnet site to our VAX. Many sites have the user ANONYMOUS set up with the password GUEST for anybody to use. SIMTEL20.ARPA has a very large number of files that can be transferred using FTP. Type **HELP FTP** on the VAX for more information. \$

New VAX Suggestion Box

By Lucia Young, VAX Operator (LUCIA@NTSUVAX)

A suggestion box utility has been added to the VAXcluster to encourage users to make comments and offer new ideas on VAX operations. You can choose to remain anonymous, but if you wish to receive a response you should include your userid along with your comment or suggestion.

To offer a suggestion or comment, type **SUGGEST** at the dollar prompt (\$). You will be presented with a menu from which you may select the editor you want to use (EDT or TPU). Once the editor is selected you can type your message. Abuse of this utility (sending pornographic suggestions, repetitive silly messages, etc.) will cause it to be discontinued. \$

Recovering Files Lost During an Edit Session

By Darrell Davis, VAX Operator (DARRELL@NTSUVAX)

Has this ever happened to you? You are editing the most important file of your life, you have modified hundreds of lines ... and suddenly the VAX crashes!

Don't despair! The VAX editors have a wonderful feature known as "file recovery" to save the day. While you are editing or inserting text in a file the VAX journaling facility keeps track of every keystroke you enter and records this information in a file called a journal file.

Unless you specify otherwise, the journal file is deleted every time you exit the editor. However, if for any reason your edit session is aborted, the journal file is not deleted. The journal file will be in your directory as *filename.JOU* (*filename* is the name of your file).

To recover a file edited with EDT, type:

```
EDIT/RECOVER filename.ext
```

or to recover a file edited with TPU, type:

```
EDIT/TPU/RECOVER filename.ext
```

or to recover a file edited with vi, type:

```
ex -r filename
```

Using the VAX TPU Editor

By Darrell Davis, VAX Operator, (DARRELL@NTSUVAX)

VAXTPU is a powerful, programmable, text processing utility. You can use the editing interfaces provided with VAXTPU without alteration to do text editing or you can use the VAXTPU language to tailor the interfaces to suit your editing style. Special features of VAXTPU are:

- Multiple buffers
- Multiple windows
- Multiple subprocesses
- Text processing in batch mode
- Insert or overstrike text entry
- Free or bound cursor motion
- Learn sequences
- Pattern matching
- Key definition
- Procedural language
- Callable interface

The two editing interfaces provided with VAXTPU are the EDT keypad emulator and the Extensible VAX Editor (EVE). It is assumed that you are familiar with the EDT editor. To invoke the VAXTPU EDT Keypad Emulator type:

```
EDIT/TPU/SECTION = EDTSECINI filename.ext
```

or place the following symbol assignment in your LOGIN.COM file:

```
ED == "EDIT/TPU/SECTION = EDTSECINI"
```

The next time you log in you can simply type:

```
ED filename.ext
```

The default (and recommended) TPU editing interface is EVE. EVE is easy to learn and fast to use. Most of the common editing functions are accessed by pressing a single key on the EVE keypad. More advanced editing functions are accessible by entering commands on the EVE command line. To invoke VAXTPU EVE type:

```
EDIT/TPU filename.ext
```

or place the following in your LOGIN.COM file:

```
ED == "EDIT/TPU"
```

The EVE command line is accessed by pressing <PF4> (VT-100) or the DO key (VT-200). You can then enter a command or type **HELP**. For example, the default EVE keypad editing commands can be displayed by typing **HELP KEYPAD**.

To customize the VAXTPU interface you can use the **DEFINE KEY** function at the EVE command line. To save all currently defined key definitions, learn sequences, and command definitions in a section file that you specify, type:

```
SAVE EXTENDED TPU device:[userid]filename.TPU$SECTION
```

The section file name should include a complete VMS file specification, including device (ex. DUA2:) and directory names. For example,

```
SAVE EXTENDED TPU DUA0:[DARRELL]MYTPU.TPU$SECTION
```

To use the section file in future editing sessions, define the logical name, **TPUSECINI**, with the same file specification that you used for the **SAVE EXTENDED TPU** command, in your LOGIN.COM. For example:

```
DEFINE TPUSECINI device:[userid]filename.TPU$SECTION
```

A more advanced custom interface may be created by using the VAXTPU programming language. A full description of the language can be found in the VAXTPU reference manual, available at the Help Desk (ISB 110).§

COMPUTER JOKE OF THE MONTH*

Q: How many Monty Python fans does it take to change a lightbulb?

A: Eleven. One to say that it is an ex-bulb and it is no more. Another to claim that it's resting. One to put a paper bag on his head at the mention of the word lightbulb. Another to say that he didn't expect the Spanish Inquisition. Three to burst in and say that their main weapons are fear, surprise and ruthless electricity. Another to have his head nailed to the lightbulb. Finally, one to do a silly walk, one to say "And now for something completely different . . .", and one to change the bulb.

Q: How Many Theoretical computer scientists does it take to change a lightbulb?

A: One, who fetches eleven Monty Python fans, thereby reducing the problem to an earlier joke.

* From *Nutworks*, Volume V, Number 2, October 1987

INFORMATION SYSTEMS

HRMIS System Status Report

By Coy Hoggard, Manager of Administrative Information Systems, and Steve Miller, Associate Director of Personnel

The HRMIS system is being developed as a joint effort between North Texas State University and the Texas College of Osteopathic Medicine. It is intended to meet unique requirements of the two institutions. HRMIS stands for

- Human
- Resources
- Management
- Information
- System

When completed, the HRMIS software system will perform all the functions of traditional payroll and personnel systems. In addition, it will track applicants, positions, job assignments, personnel budgets, insurance programs, retirement programs, and other information. This centralized, integrated, online information system will enable user departments to set up and process employee benefits programs and payrolls. It will also provide administrators with information needed to effectively manage human resources.

The overall system is being developed in five major phases:

1. Employee Maintenance - all master file maintenance activities or employee-related data, including biographic/demographic data, employment data, benefits enrollments, and assorted codes used in payroll processing.
2. Budgets - all activities associated with the preparation of fiscal year budgets, including both personnel and non-personnel items.
3. Position Control - the requisition and approval of positions and the appointment of individuals to fill those positions.
4. Payroll Input - all transactions to make or alter payments to individuals, including time reporting.
5. Applicant Tracking - the collection of data regarding applicants for employment and matching them with outstanding requisitions to fill vacant positions.

Phase I of HRMIS consists of the following six modules or sub-systems:

1. Personnel Sub-System - Provides for collection of biographic/demographic data, employment data, and insurance plan enrollments.
2. Payroll Sub-System - Supports activities related to setting up payroll codes and options.
3. Budgets Sub-System - Supports activities related to preparation of budgets or to interfacing with the Accounting System.
4. Reports Sub-System - Generates printed reports based on parameters entered by users.
5. Security Sub-System - Controls access to HRMIS sub-systems and transactions.
6. Tables Sub-System - Provides for maintenance of code values and rates that support HRMIS processing.

The "Phase I" (Employee Maintenance) software was installed the first week in October, and is currently in

production. As indicated above, Phase I encompasses the most critical data and functions needed by the Payroll and Personnel Offices (and other offices as well) regarding TCOM/NTSU employees, including payroll calculations and reporting. The remaining phases will be implemented over the next two year period.

Steve Miller, NTSU Associate Director of Personnel is overall project director for HRMIS. Bill Foxworth, Associate Vice President for Fiscal Affairs at TCOM is the project director for TCOM. Rand Horsman, Director of Personnel at TCOM, is also a TCOM representative. Bill Buntain (NTSU Information Systems Programmer/Analyst) is the technical project leader.

Other Information Systems staff on the HRMIS software development team are Will Robertson, Margaret Ambuehl, Tobie Curry, and Jocelyn Tchakounte. These folks have been working lots of long hours during recent weeks, and this will continue, to some extent, at least through the end of October as they continue to monitor the operation of their new system to make sure the first full production cycle is successful and correct.

Staff from TCOM and NTSU Payroll, Personnel, and other offices have also been heavily involved in and strongly supportive of the project. Dr. Paul Schlieve, a member of the faculty of the newly formed Computer Education and Cognitive Systems Department within the College of Education, has made significant contributions to the HRMIS User Documentation Manual. This continues to be a "team" project in every sense of the word, with the team being made up of players from many areas of both TCOM and NTSU.

Staffing Changes in Information Systems

By Douglas Heruska, Documentation Specialist

Some staffing changes have occurred in Information Systems this past month. Two people have resigned and two new employees have been hired since the last publication of *Benchmarks*.

Curtis Elder and Kay Teer resigned from the Student Records Team and are each pursuing different goals. Curtis has accepted a position with US Sprint in Las Colinas and Kay has decided to leave the job market completely and return to being a full time homemaker. Curtis and Kay have both been at North Texas for three and two and a half years, respectively. The Computing Center will miss their expertise, but we wish great success to both of them.

The Fiscal Team hired Bob Hamilton as a part-time programmer to help with their current needs. Bob has over 15 years experience and has returned to NTSU to obtain his MBA. He has previous experience in a University environment and will definitely help the team.

Cindy Newman, a long time resident of Denton, joins us as a programmer for the General Systems Team. Cindy has over 6 years experience in programming and leaves Affiliated Foods in Keller to move closer to home.

OPERATIONS

Disk Backup Schedules

Backup Schedule for OS/MVS

OS/MVS disk packs (academic and administrative) are backed up daily, Tuesday through Saturday, from 4-6:30 a.m., and Sunday from Midnight to 3 a.m. A backup of all the operating systems on the NAS CPU and their contents is done once every two weeks at some low activity period over a weekend.

MUSIC/SP Backup Hours

A message will be sent to all users signed on to MUSIC/SP approximately 10 minutes before backups are begun. It will be in the form ****MUSIC SHUT DOWN AT xxxx AM-SCHEDULED BACKUP****. To find out the backup hours while signed on to MUSIC/SP, enter **HELP HOURS**. The following backup schedule is currently in effect:

Tuesday 3 a.m. (for about 3 hours) Weekly backup
 Wednesday - Saturday 4 a.m. (for about 2 hours) Daily backup
 Saturday Midnight (for about 2 hours) Daily backup

PHOENIX Backup Schedule

PHOENIX is backed up weekly on Sunday night. The backup begins at midnight and lasts for approximately 30 minutes.

VAX Backup Schedule

Incremental backups of the VAXcluster are performed Monday through Thursday at 6 p.m. Users do not have to log-off, but any files that are open at the time of the backup will **NOT** be backed up.

Full backups of both systems are done every Friday beginning at 8 a.m. These generally will take all day to complete. Again, users do not have to log-off, but any files that are open will not be backed up.

A "Stand Alone" backup of the system disk is done once every two months. This procedure makes a copy of the system disk that can be used to restore its contents if the disk is completely destroyed. The system will be shut-down for this. Watch the system log-on message for specific times and dates. **NOTE:** Requests for restoration of files should be made via MAIL to the username OPERATOR. Your file can only be restored if it existed before the last backup was done. §

NAS/8083 Dual Processor Performance Statistics for September

CPU	SYSTEM	Scheduled Operating Hours	Planned Maintenance Hours	Planned Production Hours	Unplanned Maintenance Hours	Production Hours Achieved	System Uptime
ACAD	VM/SP3	720	4.65	715.35	0.08	715.37	99.9%
ACAD	MUSIC/SP	720	44.82	675.18	1.16	674.02	99.8%
ACAD	MVS/JES2	720	4.95	715.05	1.67	713.38	99.8%
ACAD	COMPLETA	720	5.19	714.81	2.05	712.76	99.7%
ADMN	MVS/JES2	720	0.00	720.00	0.90	719.10	99.9%
ADMN	COMPLETA	275	0.00	275.00	8.09	266.91	97.1%
ADMN	ADABASA	720	23.19	696.81	6.18	690.63	99.1%

System Uptime = (Production Hours Achieved) / (Planned Production Hours)

Production Hours Achieved = (Planned Production) - (Unplanned Maintenance)

Scheduled Operating Hours = (Planned Maintenance) + (Planned Production)

MUSIC/SP Planned Maintenance Hours include 23.31 hours for system backup and 16.81 hours for VM/SP3 system backup.

ADABASA'S Planned Maintenance Hours include 23.19 hours for system backup.

The ACAD CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime. The ADMN CPU achieved 100% uptime; the NAS/7360 DASD achieved 100% uptime; the NAS/7380 DASD achieved 100% uptime.

Lost productivity is calculated as the greatest amount of elapsed time that any one of the production systems was unavailable for scheduled operation. Lost productivity hours were contributed to by the following key causes :

DMN CPU:*Miscellaneous*

1. Undetermined causes for systems restarts.	1.69 HOURS
2. MVS/JES2 system tuning/improvements.	0.70
3. Operator started wrong version of COM-LETE	1.65
4. ADABASA system shut down for file maintenance.	4.50
5. COMPLETA system down to process single jobs.	5.13

TOTAL: 13.67 HOURS

GRAND TOTAL: 13.67 HOURS

ACAD CPU:*CPU, Tape, and Disk Subsystems (NAS)*

1. Stopped CPU while de-installing 7350 DASD.	0.42 HOURS
2. Relocated a 7380 DASD string to Disk Room and installed an additional 7380 disk unit.	5.09

Miscellaneous

1. Undetermined causes for systems restarts.	1.48 HOURS
2. MUSIC/SP DASD file maintenance.	0.96
3. COMPLETA system tuning/improvements.	0.24
4. MVS/JES2 system tuning/improvements.	0.33

TOTAL: 3.01 HOURS

GRAND TOTAL FOR ACAD: 8.52 HOURS

TECHNICAL SUPPORT**Ademic (NAS) Program Hit Parade***

The following programs were used the most frequently on the NAS CPU during the month of September.

SEPTEMBER TOP TEN PROGRAMS : FREQUENCY OF RUNS

Program	Description	Number of Runs	Percent of Total
1.IEWL	Linkage Editor	8337	16.3
2.PGM = *.DD	Compiled Program	8259	16.2
3.IKFCBL00	VS COBOL Compiler	5842	11.4
4.IEBGENER	IBM Utility	4607	9.0
5.SASLPA	SAS	3682	7.2
6.SCRIPT	Waterloo/SCRIPT	3344	6.5
7.PTPCH	Dataset Lister	2873	5.6
8.IEV90	Assembler H	2438	4.8
9. IKJEFT01	Password change	2425	4.7
10.IDCAMS	VSAM Utility	1407	2.8

SEPTEMBER TOP TEN PROGRAMS: CPU SECONDS USED

Program	Description	CPU Seconds	Percent of Total
1.SASLPA	SAS	24397	31.9
2.PGM = *.DD	Compiled Program	12172	15.9
3.IKFCBL00	VS COBOL Compiler	7746	10.1
4.SCRIPT	Waterloo/SCRIPT	6359	8.3
5.SPSSX	SPSSX	4314	5.6
6.PTPCH	Dataset Lister	4193	5.5
7.IEV90	Assembler H	1810	2.4
8.RESOLVE	System programming tool	1486	1.9
9.ISTINM01	VTAM utility	1274	1.7
10.IKJEFT01	Password change	1260	1.6

* ACAD is the official designation of the part of the NAS/8083 CPU that is dedicated to faculty and student use. The portion of the computer reserved for University administrative purposes is termed ADMN. §

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Benchmarks is a vital link between the NTSU Computing Center and the users of our facilities. It is important for all users of the computing facilities to maintain a file of these newsletters because they contain materials which will periodically update existing documents as well as information and suggestions on uses of OS/MVS, MUSIC/SP, the VAXcluster, Microcomputers, and other resources available to NTSU students and faculty. To facilitate the dispersal of *Benchmarks*, *** FREE *** subscriptions are available. To receive yours, send the following information to us either by snail mail (the post office or campus mail) or electronically, to the UserID AS04 on MUSIC, VMS, or CMS.

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North Texas State University Computing Center

**Academic Computing Services
The Computing Center
NT Box 13495
North Texas State University
Denton, TX 76203**

Computing Center Short Courses

Microcomputer Communications

The Computing Center will be offering two short courses dealing with Personal Computer to mainframe communications. Please check the box by the courses you would like to attend.

1. **Introduction to PCWS** will present an overview of using PC Work Station, a communications package which is specifically written to allow terminal access and file transfer capabilities between an IBM PC or compatible and the MUSIC/SP operating system. Topics covered will include setting up PCWS communications parameters, connecting to MUSIC over the NTSU local area network, using PCWS's full-screen capabilities, and using PCWS for file transfer between MUSIC and the PC.

2. **Introduction to Procomm** will present an overview of the Procomm communications package for Personal Computers or compatibles. Procomm provides several different terminal emulation modes, and supports several file transfer protocols including KERMIT and XMODEM. Topics covered will include setting communications and file transfer parameters, setting up and using Procomm's dialing directory, and connecting to NTSU mainframes through the local area network.

These courses will be held in Terrill Hall, room 247, at the following times:

- | | |
|--|--|
| ☐ Introduction to PCWS | -- November 17 (Tuesday): 9:00 - 10:00 a.m. |
| ☐ Introduction to Procomm | -- November 17 (Tuesday): 10:00 - 11:00 a.m. |
| ☐ Introduction to PCWS | -- November 19 (Thursday): 2:00 - 3:00 p.m. |
| ☐ Introduction to Procomm | -- November 19 (Thursday): 3:00 - 4:00 p.m. |

The schedule for these courses has been designed to allow convenient participation in both sessions if you wish to learn about both packages. We ask that you please register with the Computing Center (ISB 119, 565-2324) to attend these courses. Enrollment in each course will be limited to 15.

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